1. Ciphertext

Program Name: Ciphertext.java **Input File: ciphertext.dat**

Sally and Nancy have decided to write each other in a special code. Being middle school students, they are not very clever. They decide to use a straight replacement method, commonly called a substitution cipher. In a substitution cipher, a list of the 26 distinct alphabetic letters in a list, called ciphertext, is used to replace the 26 letters of plain text by straight substitution. Non-alphabetic characters are not replaced.

They have decided on the string "ASDFGHJKLQETUOWRYIPZCBMNVX" as the list to use as their ciphertext, where each letter in the ciphertext replaces the corresponding letter from the alphabet "ABCDEFGHIJKLMNOPQRSTUVWXYZ".

You are to write a program that will take a note that Nancy has written in ciphertext and translate it to plain text so Sally can read it. Using the string above, you would replace each letter A in their ciphertext letter with the letter A, each letter S with a B, each letter D with a C, each letter F with a D, and so forth until all of the ciphertext characters in their letter have been replaced with the corresponding letter in the alphabet so they can read the letter from their friend.

Input

The first line of input will contain a single integer n that indicates the number of coded sentences to follow. Each of the following n lines will contain a single coded note composed of ASCII characters from the keyboard. All alphabetic letters will be uppercase.

Output

For each coded note input, you will print the decoded note.

Example Input File

```
3
ZKG CLT PZAZG UGGZ LP LO UAV. L MLTT PGG VWC LO ACPZLO.
QWKO LP LO UV PZCFV JIWCR. KG EGGRP UG HWDCPGF WO UV PZCFLGP.
UV UWZKGI LP UV SGPZ HILGOF. PKG COFGIPZAOFP KWM L ZKLOE.
```

Example Output to Screen

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THE UIL STATE MEET IS IN MAY. I WILL SEE YOU IN AUSTIN.
JOHN IS IN MY STUDY GROUP. HE KEEPS ME FOCUSED ON MY STUDIES.
MY MOTHER IS MY BEST FRIEND. SHE UNDERSTANDS HOW I THINK.
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